



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,639	04/01/2004	David S. Graham	GRAMP006/P06003	9648
22434	7590	01/10/2006	EXAMINER	
BEYER WEAVER & THOMAS LLP			STAHL, MICHAEL J	
P.O. BOX 70250			ART UNIT	
OAKLAND, CA 94612-0250			PAPER NUMBER	
			2874	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

5

Office Action Summary	Application No.	Applicant(s)	
	10/816,639	GRAHAM ET AL.	
	Examiner	Art Unit	
	Mike Stahl	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-40 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-22 and 25-40 is/are rejected.
- 7) ☒ Claim(s) 7, 12, 20, 21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/8/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 2874

Specification

The specification is objected to because it does not provide the serial number of the copending US application mentioned at [0009] on p. 6. Applicant should furnish the serial number if presently known (and the patent number if that application has been issued).

Claim Objections

Claim 7 is objected to because it should depend from claim 6 rather than claim 1. Note that “first side” and “second side” are not recited in claim 1.

Claim 12 is objected to because it recites “collimate the light source”. This phrase should be amended to recite “collimate light from the light source” to improve clarity.

Claim 20 is objected to because it recites “any angle within the TIR of the material”. This phrase should be amended to recite “any angle within the TIR range of the material” to improve clarity.

Claim 21 is objected to because either “within” in line 1 should be deleted, or it should be kept and “the optically transparent member” should be inserted after it.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-7, 9, 11-12, 28, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lerner (US 3584226).

Claim 1: Lerner discloses an apparatus including: an optically transparent member **33**, the member having an input configured to receive light; and one or more facets **38/39** formed in the member, the facets being configured to reflect light received at the input of the member, the reflected light creating a lamina of light adjacent the member. See fig. 3.

Claim 2: The facets have an optically reflective surface.

Claim 3: The facets act as total internal reflection mirrors.

Claim 4: The optically transparent member is made of a material having an index of refraction greater than the index of refraction of the free space surrounding the member. It is considered inherent that the member **33** in Lerner is surrounded by air.

Claim 6: The optically transparent member has a first side **39** and a second side **38**, the first and second sides being joined at a second predetermined angle with respect to one another.

Claim 7: The first and second sides are configured at a right angle with respect to one another (col. 5 lns. 10-12).

Claim 9: The apparatus further includes a light source **31** configured to generate the light received at the input of the optically transparent member.

Claim 11: The light source includes a lamp (col. 3 lns. 37-39).

Claim 12: The apparatus further includes a collimating element **36** to collimate light from the light source before light enters the input of the optically transparent member.

Claim 28: The optically reflective surface of at least one facet has a flat shape.

Claim 31: The optically transparent member has a first side **39** running in the direction of a first axis and a second side **38** running in the direction of a second axis.

Claims 1-7, 9, 11-14, 19-21, 25-31, and 34-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Tai et al. (US 5668913).

Claim 1: Tai discloses an apparatus including: an optically transparent member **14**, the member having an input **16** configured to receive light; and one or more facets **44** formed in the member, the facets being configured to reflect light received at the input of the member, the reflected light creating a lamina of light adjacent the member. See fig. 1.

Claim 2: The facets have an optically reflective surface (fig. 3A).

Claim 3: The facets act as total internal reflection mirrors (col. 8 lns. 26-30).

Claim 4: The optically transparent member is made of a material having an index of refraction greater than the index of refraction of the free space surrounding the member.

Claim 5: In the fig. 3B embodiment, the optically transparent member has the facets recessed within the side walls (one side wall is the emission surface **22** and the other one is coplanar with **151b**).

Claim 6: The optically transparent member has a first side **22** and a second side (the top surface in fig. 1), the first and second sides being joined at a second predetermined angle with respect to one another.

Claim 7: The first and second sides as interpreted with respect to claim 6 are configured at a right angle with respect to one another.

Claim 9: The apparatus further includes a light source **2** configured to generate the light received at the input of the optically transparent member.

Claim 11: The light source may include an LED (col. 7 lns. 53-56) or a lamp (col. 10 lns. 42-46).

Claim 12: The apparatus further includes a collimating element **28** to collimate light from the light source before light enters the input **16** of the optically transparent member (fig. 2).

Claim 13: The element **28** may also be configured to perform a diffusing function (col. 6 lns. 30-51).

Claim 14: The diffusing element diffuses the light in a range of 10 degrees or less (col. 6 lns. 42-43).

Claim 19: The facets **44** are configured within the optically transparent member at a predetermined angle with respect to a side wall of the member (see e.g. fig. 3A).

Claim 20: The predetermined angle ranges from zero to any angle within the TIR range of the material of member **14** (col. 8 lns. 20-30; col. 9 lns. 44-52).

Claim 21: The facets are configured within the optically transparent member to have a tilt with respect to the member, the tilt being selected to steer the direction of light reflected from the facets (see e.g. fig. 3C).

Claims 25-27: Tai discloses that the member **14** may be made from glass or plastic (col. 5 ln. 64 – col. 6 ln. 3). The limitations of “molded”, “cut”, or “machine cut” are considered to be

Art Unit: 2874

product-by-process limitations per MPEP 2113 and are not given patentable weight since they do not define structural differences in the product.

Claim 28: The optically reflective surface of at least one facet has a flat shape.

Claim 29: The collimating element **28** is integral with the input **16** of the optically transparent member (fig. 1).

Claim 30: The optically transparent member includes a beam splitter configured to split the light received at the input into two directions (compare beams **58** and **62** in fig. 3A).

Claim 31: See above with regard to claim 6. The two sides run in the direction of respective first and second axes.

Claim 34: The optically reflective surface of the facets are micro-mirrors.

Claim 35: The micro-mirrors are internal to the optically transparent member (fig. 3B).

Claim 36: The micro-mirrors are positioned on an external surface of the optically transparent member (fig. 3A).

Claim 37: The micro-mirrors have a flat shape in most of the illustrated examples.

Claim 38: The apparatus further includes a refractive element **71** positioned on an external light emitting surface **22'** of the optically transparent member (fig. 7).

Claim 39: The refractive element has a flat shape.

Claim 40: The refractive element corresponds to one of the facets.

Claims 1-2, 4, 9, 11, 15-21, 28, 32-35, and 37 are rejected under 35 U.S.C. 102(a) as being anticipated by Printzis (US 6525677).

Claim 1: Printzis discloses an apparatus including: an optically transparent member **106**, the member having an input configured to receive light; and one or more facets **120/122/124/126** formed in the member, the facets being configured to reflect light received at the input of the member, the reflected light creating a lamina of light adjacent the member. See fig. 1. "Lamina" is being interpreted with its normal meaning of "layer" and is not being construed as a *continuous* layer.

Claim 2: The one or more facets have an optically reflective surface.

Claim 4: The optically transparent member is made of a material having an index of refraction greater than the index of refraction of the free space surrounding the member.

Art Unit: 2874

Claim 9: The apparatus further includes a light source **102** configured to generate the light received at the input of the optically transparent member.

Claim 11: The light source may include a laser or an LED (col. 2 lns. 33-35).

Claim 15: The apparatus further includes a touch screen display **100**, the display being positioned in the free space next to the lamina of light adjacent the optically transparent member.

Claim 16: The apparatus further includes an optical position detection device (sensor arrays **134** and **132**) configured to detect the position of an interrupt in the lamina when a data entry is made to the touch screen display (see e.g. fig. 2, col. 2 lns 6-16, and col. 8 lns. 1-9).

Claim 17: The optically transparent member has a first side **106** configured to generate the lamina of light in a first direction defined by a first axis and a second side **104** configured to generate the lamina of light in a second direction defined by a second axis.

Claim 18: The apparatus further includes a processor (matrix IC **130**), coupled to the optical position detection device, and configured to determine the data entry made to the touch screen display based on the location of the interrupt (col. 6 lns. 21-35).

Claim 19: The one or more facets are configured within the optically transparent member at a predetermined angle with respect to a side wall of the member.

Claim 20: The predetermined angle ranges from zero to any angle within the TIR range of the material of the member.

Claim 21: The one or more facets are configured within the optically transparent member to have a tilt with respect to the member, the tilt being selected to steer the direction of light reflected from the facets.

Claim 28: The optically reflective surface of at least one facet has a flat shape.

Claims 32-33: See above with regard to claims 15, 16, and 18.

Claim 34: The optically reflective surface of the facets are micro-mirrors.

Claim 35: The micro-mirrors are internal to the optically transparent member.

Claim 37: The micro-mirrors have a flat shape.

Art Unit: 2874

Claims 1-4, 6-8, 19-21, 28, 31, 34, and 36-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bahnemann et al. (US 5512943).

Claim 1: Bahnemann discloses an apparatus including: an optically transparent member **303**, the member having an input configured to receive light; and one or more facets **304** (and another one near the lead line from **38**) formed in the member, the facets being configured to reflect light received at the input of the member, the reflected light creating a lamina of light adjacent the member. See fig. 13.

Claim 2: The facets have an optically reflective surface.

Claim 3: The facets act as total internal reflection mirrors.

Claim 4: The optically transparent member is made of a material having an index of refraction greater than the index of refraction of the free space surrounding the member.

Claim 6: The optically transparent member **303** has a first side and a second side, the first and second sides being joined at a second predetermined angle with respect to one another.

Claim 7: The first and second sides are configured at a right angle with respect to one another (the overall light guide is L-shaped, col. 16 lns. 34-35).

Claim 8: The optically transparent member has a first side and a second side joined at an angle, the first side being configured to transmit light received at the input to the second side by way of a total internal reflection mirror **304** formed at the angle.

Claim 19: The one or more facets are configured within the optically transparent member at a predetermined angle with respect to a side wall of the member.

Claim 20: The predetermined angle ranges from zero to any angle within the TIR range of the material of the member.

Claim 21: The facets are configured within the optically transparent member to have a tilt with respect to the member, the tilt being selected to steer the direction of light reflected from the facets.

Claim 28: The optically reflective surface of at least one facet has a flat shape.

Claim 31: See above with regard to claim 6. The two sides run in the direction of respective first and second axes.

Claim 34: The optically reflective surface of the one or more facets are micro-mirrors.

Claim 36: The micro-mirrors are positioned on an external surface of the optically transparent member.

Claim 37: The micro-mirrors have a flat shape.

Claim 38: The apparatus further includes a refractive element **360** positioned on an external light emitting surface of the optically transparent member.

Claim 39: The refractive element has a flat shape.

Claim 40: The refractive element corresponds to one of the facets.

Claims 1-2, 4-7, 9, 11, 19-22, 25-28, 31, 34-35, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Sugiura et al. (US 6734929).

Claim 1: Sugiura discloses an apparatus including: an optically transparent member **13**, the member having an input configured to receive light; and one or more facets (sidewalls of grooves **13b**) formed in the member, the facets being configured to reflect light received at the input of the member, the reflected light creating a lamina of light adjacent the member. See figs. 1 and 4.

Claim 2: The facets have an optically reflective surface.

Claim 4: The optically transparent member is made of a material having an index of refraction greater than the index of refraction of the free space surrounding the member.

Claim 5: The optically transparent member **13** has side walls, and the facets are recessed within the side walls.

Claim 6: The optically transparent member has a first side and a second side, the first and second sides being joined at a second predetermined angle with respect to one another.

Claim 7: The first and second sides are configured at a right angle with respect to one another (see the cross section view of **13** in fig. 5).

Claim 9: The apparatus further includes a light source **15** configured to generate the light received at the input of the optically transparent member.

Claim 11: The light source may include an LED (col. 11 lns. 57-60).

Claim 19: The facets are configured within the optically transparent member at a predetermined angle with respect to a side wall of the member.

Claim 20: The predetermined angle ranges from zero to any angle within the TIR range of the material of member 13.

Claim 21: The facets are configured within the optically transparent member to have a tilt with respect to the member, the tilt being selected to steer the direction of light reflected from the facets.

Claim 22: The reflective surfaces of the one or more facets each have a different depth (fig. 4; col. 11 lns. 42-46).

Claims 25-27: Sugiura discloses that the member 13 may be made from glass or plastic (col. 11 lns. 54-56). The limitations of “molded”, “cut”, or “machine cut” are considered to be product-by-process limitations per MPEP 2113 and are not given patentable weight since they do not define structural differences in the product.

Claim 28: The optically reflective surface of at least one facet has a flat shape.

Claim 31: See above with regard to claim 6. The two sides run in the direction of respective first and second axes.

Claim 34: The optically reflective surface of the facets are micro-mirrors.

Claim 35: The micro-mirrors are internal to the optically transparent member.

Claim 37: The micro-mirrors have a flat shape.

Allowable Subject Matter

Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the applied art shows or suggests facets having a surface which extends from the optically reflective surface to a light emitting surface on the optically transparent member, with the height of the surface varying to reduce the amount of light blocked by a first facet and received by a subsequent facet, in combination with the features of base claims 1 and 2.

Conclusion

The additional references listed on the attached PTO-892 form are considered relevant to the subject matter of this application.

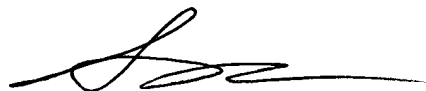
Art Unit: 2874

Inquiries about this letter should be directed to Mike Stahl at 571-272-2360. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at 571-272-1626. Official correspondence which is eligible for submission by facsimile and which pertains to this application may be faxed to 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions about the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MSS

Mike Stahl
Patent Examiner
Art Unit 2874

January 5, 2006



**SUNG PAK
PRIMARY EXAMINER**